

Remarks

Applicants Attorney, Sidney Persley, would like to thank the Examiner for taking the time to meet with him on June 26, 2003. Attached hereto is a marked-up version of the changes made to the claims by the current pursuant to such interview. The present amendment also adds one new independent claim, Claim 29. No new matter is added to the specification by way of such amendments.

The Invention

The invention is directed to a non-aqueous **lamination ink** formulation or dispersion containing: (a) a resin; (b) a non-fluorescent pigment; (c) an organic solvent; and (d) a viscosity stabilizing, resolubility promoting water-soluble compound selected from a base, aminoalcohol, acid and aminoacid. The invention is also directed to a method of increasing the stability and resolubility of a non-aqueous laminating ink formulation or dispersion of a similar composition by adding a water soluble compound selected from a base, aminoalcohol, acid and aminoacid.

The Invention versus Ink Jet Inks

Lamination ink formulations are a separate and distinct technology to that of ink jet ink formulations, and are formulated in a diametrically opposed philosophy. Therefore a person of ordinary skill in the art would not use an ink jet ink formulation as a lamination ink formulation. **Ink jet** printing involves projecting a stream of ink droplets towards a surface and controlling the direction of the stream, e.g. electronically, so that the droplets form the desired print image on the surface. In this way, ink jet printing is a non-contact printing technique which require the inks to be formulated in such a way so as to give a very low viscosity (i.e. approximately 4 cps, see The Printing Ink Manual, 5th Ed. page, 683, Table 12.1.) so that the droplets once formed can be sprayed onto the substrate through very small nozzles in the ink jet printing apparatus (i.e. print

head). Since the inks employed contain relatively low molecular weight components the inks possess minimal mechanical properties when printed on the substrate and are only used in surface printing applications. **Lamination** printing occurs when an ink composition is printed on a base film, which film is in turn laminated with another dissimilar film to form a structure in which the dried ink film is disposed between the two film plies. This is a contact printing technique as the ink must travel through the flexographic or gravure printing process inking train and is subject to dynamic forces, i.e. the ink has to be transferred onto a number of different surfaces before actual printing onto the substrate. Therefore it is vital that a lamination ink have a relatively higher viscosity (i.e. 10 to 50 cps). Lamination ink compositions are also formulated so as not to prevent the formation of the significant mechanical adhesive bonds that occur between component substrate films within the finished laminate structure. This simply means that higher molecular weight components must be used in order to generate the required mechanical properties suitable for lamination film formation. Therefore, a lamination ink formulation cannot be used in an ink jet printing application since the formulation would not pass through the nozzle due to its higher ink viscosity. Likewise, an ink jet ink formulation cannot be used in a lamination ink application, since the low viscosity would prevent efficient transfer of the ink through the inking train and ultimately to the substrate. In addition, the ink would not possess the mechanical properties (e.g. adhesive bonding of the component substrates of the laminate structure).

Rejections Pursuant to 35 U.S.C. § 102

Claims 1-2, 4-8, 15-16, and 18-22 are rejected under 35 U.S.C. §102(e) as being anticipated by Zhu et al. (US 6,251,175). Zhu et al. disclose a non-aqueous **ink jet ink** formulation containing an organic solvent, a colorant, a resin and water soluble compound selected from the group consisting of base, aminoalcohol, acid and aminoacid, with a Brookfield Viscosity from about 1 to 7 cps (col. 12, lines 24-25) and a method of jet printing onto non-porous substrates. Applicants point out that, as an ink jet ink, the very **low viscosity** of

the ink jet formulated in Zhu et al. does not make it a laminating ink. Therefore, Zhu et al. does not anticipate Applicants' **laminating ink** formulation.

Claims 1, 3-10, 12-13, 15, 17-24, and 26-27 are rejected under 35 U.S.C. §102(e) as being anticipated by Trauernicht et al. (US 6,247,801). Trauernicht et al. disclose an ink jet printing process and non-aqueous **ink jet** formulation containing resin, organic solvent, pigment and water-soluble compound selected from the group consisting of base, aminoalcohol, acid and aminoacid. Applicants point out that, as an ink jet ink, the very **low viscosity** of the ink jet formulated in Trauernicht et al. does not make it a laminating ink. Therefore, Trauernicht et al. does not anticipate Applicants' **laminating ink** formulation.

Claims 1-3, 5, 7-10, 15-17, 19 and 21-24 are rejected under 35 U.S.C. §102(b) as being anticipated by Mead et al. (US 5,596,027). Mead et al discloses an **ink jet** formulation containing a carrier (e.g. water), a polyamine, a colorant and an acidic resin, having a viscosity of about 5 cps or less at 25°C. Applicants point out that, as an ink jet ink, the very **low viscosity** of the ink jet formulated in Mead et al. does not make it a laminating ink. Therefore, Mead et al. does not anticipate Applicants' **laminating ink** formulation.

Claims 1, 11, 15, 23 and 25 are rejected under 35 U.S.C. §102(b) as being anticipated by Johnson et al. (US 5,922,118). Johnson et al. disclose an ink jet formulation containing an aqueous vehicle or a non- aqueous and a modified colored pigment. Applicants point out that, as an ink jet ink, the very **low viscosity** of the ink jet formulated in Johnson et al. does not make it a laminating ink. Therefore, Johnson et al. does not anticipate Applicants' **laminating ink** formulation.

Claims 1-2, 5-6, 12, 14-16, 19-20, 26 and 28 are rejected under 35 U.S.C. §102(e) as being anticipated by Nowak et al. (US 6,425,948). Nowak et al. disclose a non-aqueous **fluorescent ink** containing a fluorescent pigment **dispersion**, a high boiling organic solvent as well as resins, plasticizers, antiskinning agents and stabilizers, formulated for use in writing instruments (e.g. **pen**). Applicants' claims call for a **pigment** not a fluorescent pigment dispersion. Therefore, Nowak et al. do not anticipate Applicants' laminating ink formmulation.

Applicants believe that the remarks made herein, adequately and completely address the Examiner's rejections. Therefore, Applicants respectfully request withdrawal of the rejections and allowance of the claims.

Conclusion

Applicants believe that the Amendments and Remarks provided herein adequately and completely address the rejections raised by the Examiner. It is therefore, respectfully submitted that the claims are now in condition-for-allowance.

Date: November 20, 2003

Respectfully submitted,



Sidney Persley, Esq.
Attorney for Applicants
Registration No. 34,898
Telephone (201) 224-4600, ext. 278

Sun Chemical Corporation
Law Division
222 Bridge Plaza South
Fort Lee, NJ 07024

Certificate of Mailing

I, Nancy Stedtler, hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail on the date below and in an envelope addressed to: Mail Stop Fee Amendment, P.O. Box 1450, Commissioner for Patents, Alexandria, Virginia 22313-1450.

Date: 11-20-03

Signature

